CLAIMS

We claim:

1. A composition for inhibition of inducible COX-2 activity and having minimal effect on COX-1 activity, said composition comprising, as a first component an effective amount of a sesquiterpene lactone species and an effective amount of a second component selected from the group consisting of a diterpene lactone species and a triterpene species or derivatives thereof.

2. The composition of Claim 1 wherein first and second components are derived from plants or plant extracts.

3. The composition of Claim 1 wherein at least one of said first or second component is conjugated with a compound selected from the group consisting of mono- or di-saccharides, amino acids, sulfates, succinate, acetate and glutathione.

4. The composition of Claim 1, formulated in a pharmaceutically acceptable carrier.

5. The composition of Claim 1, additionally containing one or members selected from the group consisting of antioxidants, vitamins, minerals, proteins, fats, carbohydrates, glucosamine, chondrotin sulfate and aminosugars.

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6. A composition for inhibition of inducible COX-2 activity and having minimal effect on COX-1 activity, said composition comprising, as a first component an effective amount of a pharmaceutical grade compound selected from the group consisting of parthenolide, encelin, leucanthin B, enhydrin, melapodin A, tenulin, confertiflorin, burrodin, psilostachyin A, costunolide, strigol and helenalin; and a second component an effective amount of a pharmaceutical grade compound selected from the group consisting of andrographolide, dehydroandrographolide, deoxyandrographolide, aneoandrographolide, ursolic acid, oleanolic acid, betulin, betulinic acid, glycyrrhetinic acid, glycyrrhizic acid, triperin and derivatives thereof.

7. The composition of Claim 6 wherein first and second components are derived from plants or plant extracts.

8. The composition of Claim 6 wherein at least one of said first or second component is conjugated with a compound selected from the group consisting of mono- or di- saccharides, amino acids, sulfates, succinate, acetate and glutathione.

9. The composition of Claim 6, formulated in a pharmaceutically acceptable carrier.

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10. The composition of Claim 6, additionally containing one or members selected from the group consisting of antioxidants, vitamins, minerals, proteins, fats, carbohydrates, glucosamine, chondrotin sulfate and aminosugars.

11. A composition for inhibition of inducible COX-2 activity and having minimal effect on COX-1 activity, said composition comprising, as a first component an effective amount of a pharmaceutical grade compound selected from the group consisting of parthenolide, encelin, leucanthin B, enhydrin, and melapodin A; and a second component an effective amount of a pharmaceutical grade compound selected from the group consisting of andrographolide, dehydroandrographolide, deoxyandrographolide, neoandrographolide, ursolic acid, oleanolic acid, betulin, betulinic acid, glycyrrhetinic acid, glycyrrhizic acid, triperin and derivatives thereof.

12. The composition of Claim 11 wherein first and second components are derived from plants or plant extracts.

13. The composition of Claim 11 wherein at least one of said first or second component is conjugated with a compound selected from the group consisting of mono- or di- saccharides, amino acids, sulfates, succinate, acetate and glutathione.

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14. The composition of Claim 11, formulated in a pharmaceutically acceptable carrier.

15. The composition of Claim 11, additionally containing one or members selected from the group consisting of antioxidants, vitamins, minerals, proteins, fats, carbohydrates, glucosamine, chondrotin sulfate and aminosugars.

16. A composition for inhibition of inducible COX-2 activity and having minimal effect on COX-1 activity, said composition comprising, as a first component an effective amount of a pharmaceutical grade parthenolide and a second component an effective amount of a pharmaceutical grade compound selected from the group consisting of andrographolide, ursolic acid, oleanolic acid, and derivatives thereof.

17. The composition of Claim 16 wherein first and second components are derived from plants or plant extracts.

18. The composition of Claim 16 wherein at least one of said first or second component is conjugated with a compound selected from the group consisting of mono- or di- saccharides, amino acids, sulfates, succinate, acetate and glutathione.

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19. The composition of Claim 16, formulated in a pharmaceutically acceptable carrier.

20. The composition of Claim 16, additionally containing one or members selected from the group consisting of antioxidants, vitamins, minerals, proteins, fats, carbohydrates, glucosamine, chondrotin sulfate and aminosugars.

21. A method of dietary supplementation in animals comprising administering to an animal suffering symptoms of inflammation a composition comprising, as a first component an effective amount of a sesquiterpene lactone species and an effective amount of a second component selected from the group consisting of a diterpene lactone species and a triterpene species or derivatives thereof, and continuing said administering of the composition until said symptoms are reduced.

22. The method of Claim 21 wherein the composition is formulated in a dosage form such that said administration provides from 0.05 to 5.0 mg body weight per day of each sequesterpene lactone species, and from 0.5 to 20.0 mg/kg bodyweight per day of each diterpene lactone species or triterpene species.

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23. The method of Claim 21, wherein the composition is administered in an amount sufficient to maintain a serum concentration of 0.001 to 10 μM of each sesquiterpene lactone species and from 0.001 to 10 μM of each diterpene lactone or triterpene species.

24. The method of Claim 21 wherein said animal is selected from the group consisting of humans, non-human primates, dogs, cats, birds, horses and ruminants.

25. The method of Claim 21 wherein administration is by a means selected from the group consisting of oral, parenteral, topical, transdermal and transmucosal delivery.

26. A method of dietary supplementation in animals comprising administering to an animal suffering symptoms of inflammation a composition comprising, as a first component an effective amount of a pharmaceutical grade compound selected from the group consisting of parthenolide, encelin, leucanthin B, enhydrin, melapodin A, tenulin, confertiflorin, burrodin, psilostachyin A, costunolide, strigol and helenalin; and a second component an effective amount of a pharmaceutical grade compound selected from the group consisting of andrographolide, dehydroandrographolide, deoxyandrographolide, aneoandrographolide, ursolic acid, oleanolic acid, betulin, betulinic acid, glycyrrhetinic acid, glycyrrhizic acid, triperin and derivatives thereof, and continuing said administering of the composition until said symptoms are reduced.

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27. The method of Claim 26 wherein the composition is formulated in a dosage form such that said administration provides from 0.05 to 5.0 mg body weight per day of each sequesterpene lactone species, and from 0.5 to 20.0 mg/kg bodyweight per day of each diterpene lactone species or triterpene species.

28. The method of Claim 26, wherein the composition is administered in an amount sufficient to maintain a serum concentration of 0.001 to 10 μM of each sesquiterpene lactone species and from 0.001 to 10 μM of each diterpene lactone or triterpene species.

29. A method of dietary supplementation in animals comprising administering to an animal suffering symptoms of inflammation a composition comprising, as a first component an effective amount of a pharmaceutical grade compound selected from the group consisting of parthenolide, encelin, leucanthin B, enhydrin, and melapodin A; and a second component an effective amount of a pharmaceutical grade compound selected from the group consisting of andrographolide, dehydroandrographolide, deoxyandrographolide, neoandrographolide, ursolic acid, oleanolic acid, betulin, betulinic acid, glycyrrhetinic acid, glycyrrhizic acid, triperin and derivatives thereof, and continuing said administering of the composition until said symptoms are reduced.

30. A method of dietary supplementation in animals comprising administering to an animal suffering symptoms of inflammation a composition comprising, as a first

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6. (Amended) A composition of Claim 1, wherein the first component is selected from the group consisting of parthenolide, encelin, leucanthin B, enhydrin, melapodin A, tenulin, confertiflorin, burrodin, psilostachyin A, costunolide, strigol, and helenalin; and

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the second component is selected from the group consisting of andrographolide, dehydroandrographolide, deoxyandrographolide, aneoandrographolide, ursolic acid, oleanolic acid, betulin, betulinic acid, glycyrrhetinic acid, glycyrrhizic acid, triperin, and derivatives thereof.

11. (Amended) A composition of Claim 1, wherein the first component is selected from the group consisting of parthenolide, encelin, leucanthin B, enhydrin, and melapodin A; and

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the second component is selected from the group consisting of andrographolide, dehydroandrographolide, deoxyandrographolide, neoandrographolide, ursolic acid, oleanolic acid, betulin, betulinic acid, glycyrrhetinic acid, glycyrrhizic acid, triperin, and derivatives thereof.

16. (Amended) A composition of Claim 1, wherein the first component comprises parthenolide; and

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the second component is selected from the group consisting of andrographolide, ursolic acid, oleanolic acid, and derivatives thereof.

21. (Amended) A method of dietary supplementation in animals comprising administering to an animal suffering symptoms of inflammation a composition of Claim 1 and continuing said administering of the composition until said symptoms are reduced.

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22. (Amended) The method of Claim 21, wherein the composition is formulated in a dosage form such that said administration provides from 0.05 to 5.0 mg body weight per day of each sesquiterpene lactone species, and from 0.5 to 20.0 mg/kg bodyweight per day of each diterpene lactone species or triterpene species.

26. (Amended) The method of Claim 21, wherein the first component is selected from the group consisting of parthenolide, encelin, leucanthin B, enhydrin, melapodin A, tenulin, confertiflorin, burrodin, psilostachyin, A, costunolide, strigol, and helenalin; and

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the second component is selected from the group consisting of andrographolide, dehydroandrographolide, deoxyandrographolide, aneoandrographolide, ursolic acid, oleanolic acid, betulin, betulinic acid, glycyrrhetinic acid, glycyrrhizic acid, triperin, and derivatives thereof.

27. (Amended) The method of Claim 26 wherein the composition is formulated in a dosage form such that said administration provides from 0.05 to 5.0 mg body weight per day of each

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sesquiterpene lactone species, and from 0.5 to 20.0 mg/kg bodyweight per day of each diterpene lactone species or triterpene species.

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29. (Amended) The method dietary supplementation of Claim 21, wherein the first component is selected from the group consisting of parthenolide, encelin, leucanthin B, enhydrin, and melapodin A; and

the second component is selected from the group consisting of andrographolide, dehydroandrographolide, deoxyandrographolide, neoandrographolide, ursolic acid, oleanolic acid, betulin, betulinic acid, glycyrrhetinic acid, glycyrrhizic acid, triperin, and derivatives thereof.

30. (Amended) The method of Claim 21, wherein the first component comprises parthenolide; and

the second component is selected from the group consisting of andrographolide, ursolic acid, oleanolic acid, and derivatives thereof.

31. (Amended) A method of therapeutic treatment in animals comprising administering to an animal suffering symptoms of arthritis a composition of Claim 1, and continuing said administering until said symptoms are reduced.

32. (Amended) The method of Claim 31, wherein the first component is selected from the group consisting of parthenolide, encelin, leucanthin B, enhydrin, melapodin A, tenulin, confertiflorin, burrodin, psilostachyin A, costunolide, strigol, and helenalin; and

the second component is selected from the group consisting of andrographolide, dehydroandrographolide, deoxyandrographolide, neoandrographolide, ursolic acid, oleanolic acid, betulin, betulinic acid, glycyrrhetinic acid, glycyrrhizic acid, triperin, and derivatives thereof.

33. (Amended) The method of Claim 31, wherein the first component is selected from the group consisting of parthenolide, encelin, leucanthin B, enhydrin, and melapodin A; and

the second component is selected from the group consisting of andrographolide, dehydroandrographolide, deoxyandrographolide, neoandrographolide, ursolic acid, oleanolic acid, betulin, betulinic acid, glycyrrhetinic acid, glycyrrhizic acid, triperin, and derivatives thereof.

34. (Amended) The method of Claim 31, wherein the first component comprises parthenolide; and

the second component is selected from the group consisting of andrographolide, ursolic acid, oleanolic acid, and derivatives thereof.

35. (Amended) A method of therapeutic treatment comprising applying to the skin of a human suffering symptoms of acne rosacea a lotion comprising a composition is Claim 1 and continuing said administering of the composition until said symptoms are reduced.

36. (Amended) The method of Claim 35, wherein the first component is selected from the group consisting of parthenolide, encelin, leucanthin B, enhydrin, melapodin A, tenulin, confertiflorin, burrodin, psilostachyin A, costunolide, strigol, and helenalin; and

the second component is selected from the group consisting of andrographolide, dehydroandrographolide, deoxyandrographolide, neoandrographolide, ursolic acid, oleanolic acid, betulin, betulinic acid, glycyrrhetinic acid, glycyrrhizic acid, triperin, and derivatives thereof.

37. (Amended) The method of Claim 35, wherein the first component is selected from the group consisting of parthenolide, encelin, leucanthin B, enhydrin, and melapodin A; and

the second component is selected from the group consisting of andrographolide, dehydroandrographolide, deoxyandrographolide, neoandrographolide, ursolic acid, oleanolic acid, betulin, betulinic acid, glycyrrhetinic acid, glycyrrhizic acid, triperin, and derivatives thereof.

38. (Amended) The method of Claim 35, wherein the first component comprises parthenolide; and

the second component is selected from the group consisting of andrographolide, ursolic acid, oleanolic acid, and derivatives thereof.

39. (Amended) A method of therapeutic treatment comprising applying to the skin of a human suffering symptoms of psoriasis a lotion comprising a composition of Claim 1 and continuing said administering of the composition until said symptoms are reduced.

40. (Amended) The method of Claim 39, wherein the first component is selected from the group consisting of parthenolide, encelin, leucanthin B, enhydrin, melapodin A, tenulin, confertiflorin, burrodin, psilostachyin A, costunolide, strigol, and helenalin; and

the second component is selected from the group consisting of andrographolide, dehydroandrographolide, deoxyandrographolide, neoandrographolide, ursolic acid, oleanolic acid, betulin, betulinic acid, glycyrrhetinic acid, glycyrrhizic acid, triperin, and derivatives thereof.

41. (Amended) The method of Claim 39, wherein the first component is selected from the group consisting of parthenolide, encelin, leucanthin B, enhydrin, and melapodin A; and

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the second component is selected from the group consisting of andrographolide, dehydroandrographolide, deoxyandrographolide, neoandrographolide, ursolic acid, oleanolic acid, betulin, betulinic acid, glycyrrhetinic acid, glycyrrhizic acid, triperin, and derivatives thereof.

42. (Amended) The method of Claim 39, wherein the first component comprises parthenolide; and

the second component is selected from the group consisting of andrographolide, ursolic acid, oleanolic acid, and derivatives thereof.

REMARKS

In the communication referred above, the Examiner has required restriction to one of 20 inventions:

Group I (Claims 1-5), drawn to a composition for inhibition of COX-2 activity comprising a sesquiterpene lactone and diterpene lactone or triterpene, classified in Class 424, subclass 725, for example;

Group II (Claims 6-9), drawn to a composition for inhibition of COX-2 activity comprising a first compound, such as encelin, and a second component, such as betulin, classified in Class 424, subclass 775, for example.

Group III (Claims 11-15), drawn to a composition for inhibition of COX-2 activity comprising a first compound, such as melapodin A, and a second compound, such as glycyrrhizic acid, classified in Class 424, subclass 725, for example.

Group IV (Claims 16-20), drawn to a composition for inhibition of COX-2 comprising parthenolide and a compound, such as ursolic acid, classified in Class 424, subclass 732, for example.

Group V (Claims 21-25), drawn to a method of dietary supplementation comprising administration of a sesquiterpene lactone and diterpene lactone or triterpene, classified in Class 558, subclass 12, for example.